microcapsules are formed of polymer shells containing the peptide drug.

Applicant responds that his amendment of claim 1 overcomes this rejection. The intermediate mixture of WO '676's example 9 contains a very dilute combination of polymer in organic solvent. The polymer concentration is 0.038 gm per ml according to this example. In contrast, Applicant's composition contains a minimum concentration of 0.1 gm of polymer per ml of solvent up to a 3 gm per ml maximum. WO'676 does not teach this higher concentration of polymer in the composition. Moreover, it is not within the skill of the art to employ such a higher concentration by following the teaching of WO '676. The goal and achievement of WO'767 is the formation of uniform microcapsules having polymer shells. With higher concentrations of polymer, agglomeration of the microcapsules and a lower encapsulation efficiency are obtained. See col. 5, lines 40-50 of the US equivalent of WO '676. Hence, one of skill would use polymer concentrations much lower than Applicant's claimed minimum if he were following the WO'676 teaching. This lower polymer concentration would expose the drug micelles to a higher concentration of organic solvent. Since the solvent is partially water soluble, there would be more of an opportunity for solvent to invade the micelles and cause denaturation of the peptide drug. This effect runs counter to the objects achieved by the present invention. See page 2, lines 1-12 of the application.

In addition to the distinction based upon concentration, WO '676 does not teach or suggest that the emulsion would be stable or that it could be converted *in situ* into a solid implant. These features are now incorporated into the claims by reason of the foregoing amendment. In contrast, WO '676 teaches immediate use of its mixture to form microcapsules. This teaching suggests nothing about stability. This teaching suggests nothing about use of the emulsion to form *in situ* a solid implant. WO'676 only teaches the formation of microcapsules outside the body. Microcapsules do not suggest a monolithic (single body) solid implant.

For these reasons, Applicant submits that his claims, as amended, are distinguished from and patentable over WO'676.

Amendment of Claims 30 and 31

Applicant has amended claim 30 to re-institute the claim language originally submitted by the Amendment of December 28, 2001. When the succeeding amendment of September 30, 2002 was submitted, the text of claim 31 was inadvertently copied in substitution of the text for claim 30. This error resulted in two claims, 30 and 31, having the same text as presented by the "Clean Version of the Pending Claims" submitted with the September 30th amendment. This amendment of claim 30 corrects that error.

Applicant has also amended claim 31 to remove tetrahydrofuran as a solvent since THF is very soluble in water.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (612-373-6939) to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, Washington, D.C. 20231, on this 31st day of January, 2003.

Dawn M. Poole
Name

Dawn M. Poole
Signature

CLEAN VERSION OF AMENDED CLAIMS

EMULSIONS FOR IN-SITU DELIVERY SYSTEM
Applicant: Richard L. Dunn
Serial No.: 09/060,047

1. A composition for delivering a biologically active agent, comprising: an emulsion of a biologically active mixture and a controlled release formulation, the biologically active mixture comprising the biologically active agent and a pharmaceutically acceptable, aqueous medium as a protective carrier; and the controlled release formulation comprising a pharmaceutically acceptable, biodegradable thermoplastic polymer that is substantially insoluble in an aqueous or body fluid and a pharmaceutically acceptable organic solvent having a water solubility of from about 2 percent to about 20 percent by weight relative to a weight of a combination of organic solvent and water and wherein the concentration of polymer in organic solvent ranges from about 0.1 gm per ml to about 3 gm per ml and the composition is used to form an *in situ* solid implant.

2. A precomposition suitable for preparing a composition according to claim 1, comprising separate containers of the biologically active mixture and controlled release formulation, which containers are adapted to cause combination of the biologically active mixture and controlled release formulation.

3. A composition of claim 1, wherein the biologically active agent is selected from the group consisting of an antiinflammatory agent, an antibacterial agent, an antifungal agent, an analgesic agent, an anesthetic agent, an immunogen, a vaccine, an antineoplastic agent, a growth or survival agent, a hormone, a cardiovascular agent, an anti-ulcer agent, a bronchial agent, a central nervous system agent, a gene, a gene fragment, an insertion vector carrying a gene or gene fragment, and any combination or multiple thereof.

14. A composition of claim 1 wherein the thermoplastic polymer formula contains monomeric units selected from the group consisting of lactide, glycolide, caprolactone, anhydride, amide, urethane, esteramide, orthoester, dioxanone, acetal, ketal carbonate,

phosphazene, hydroxybutyrate, hydroxyvalerate, alkylene oxalate, alkylene succinate, amino acid and any copolymer and terpolymer combination of these monomeric units in random order or in block order.

15. A composition of claim 14 wherein the monomeric units include lactide, glycolide, caprolactone, hydroxybutyrate, and any combination thereof.

19. A composition of claim 1, wherein the emulsion is a water-in-oil emulsion.

28. A composition of claim 1 wherein the thermoplastic polymer is in mixture with a non-polymeric material.

29. A composition of claim 1 wherein the aqueous carrier is water, saline, physiological buffer solution, cell-culture medium, aqueous nutrient medium, aqueous mineral medium, aqueous amino acid medium, aqueous lipid medium, aqueous vitamin medium or any combination thereof.

30. A composition of claim 1 wherein the organic solvent is selected from the group consisting of esters of carbonic acid and alkyl alcohols, alkyl esters of mono-, di-, and tricarboxylic acids, and alkyl ketones.

31. A composition of claim 1 wherein the organic solvent is selected from the group consisting of propylene carbonate, diethyl malonate , ethylene carbonate, dimethyl carbonate, 2-ethoxy ethyl acetate, ethyl acetate, methyl acetate, ethyl butyrate, diethyl glutonate, tributyl citrate, diethyl succinate, tributyrin, isopropyl myristate, dimethyl adipate, dimethyl succinate, dimethyl oxalate, dimethyl citrate, triethyl citrate, acetyl tributyl citrate, glyceryl triacetate, methyl ethyl ketone.